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POLICY INSTRUMENTS' ADJUSTMENT FOR GREEN ECONOMY

1. Introduction

Research on the environmental aspects of social and economic development has been continuing for quite a while. Focusing merely on the second half of the 20th century, it is worth mentioning the wide response to the First Report to the Club of Rome titled “Limits to Growth” apparent in the daily papers. The report, which was based on an econometric model of the world economy, pointed to the looming threat of exhausting some natural resources in the near future.¹ The idea of *zero growth*, suggested under the same cover, did not meet any acceptance, while the slogan for eco-development – in its quite narrow meaning, focusing merely on the protection of the natural environment – evolved into the concept of the *Sustainable Development*. Its implementation is to ensure economic, spatial, social and environmental order as well as to provide sustained development poised to safeguard adequate standard of living for the future generations. The concept of the Sustainable Development is reflected, *inter alia*, in the ideas of the so-called Third Way, which was initially devised as an interim link between

¹ D. H. Meadows, D. I. Meadows, J. Randers, W. W. Behrens, *The Limits to Growth*, Universe Books, New York 1972 [*Granice wzrostu*, PWE, Warszawa 1973]. A new forecast report authored by the same team, but with an improved methodology was published 30 years later. Its conclusions were similar, yet it did not make such an impact, *Limits to Growth. The 30-Year Update*, Chelsea Green Publishing, Vermont 2004. Further discussion was presented by Jorgen Randers, *A Global Forecast for the Next Forty Years, 2052. A Report to the Club of Rome Commemorating the 40th Anniversary of the Limits to Growth*, Chelsea Green Publishing, Vermont 2012.

the market (capitalist) economy and the socialist economy (mainly as understood by the Eastern Europeans). The names of the Labour Party activist, and then British Prime Minister Tony Blair as well as an economist and a politician Anthony Giddens, or a Polish economist Tadeusz Kowalik merit attention.² There are also some views promoting connection of the ordoliberal doctrine of Wilhelm Röpke and Walter Eucken, and somewhat contemporary principles of German social market economy (highlighting economic order and competitive order based on ethical standards) with the concept of Sustainable Development.³ Despite certain controversies, the concept of SD has been included in practical programs of social and economic development. However, there have also emerged parallel concepts and programs of *green economy*.

The concept of *green economy*, popular in the Anglo-Saxon literature, has become relatively common also in Poland. Even though it may seem a mental shortcut, or a term coined by journalists to describe natural environment protection projects, it has assumed a more profound meaning in Western Europe. That is because it is related to the new trends of industrial development which include environmental aspects, and in particular low-emission technologies, which were especially supported by the state.

This paper is poised to present the concept of the *green economy* and its impact on industrial and energy policy, giving due regard to the controversies in the terminology and the links between the sustainable development. The author confines his research to the industry and power generation, and does not include agriculture due to its character and simpler environmental issues. We will focus not merely on the terminology issues – which sometimes raise some controversy – but also on the evolution of their content. Our foremost aim is to provide a succinct analysis of the economic instruments that support the implementation of the *green economy*.

2. The concept and practical application of the green economy

Most likely, the concept of green economy was conceived in the USA, yet it became popular with the publication of a report “Blueprint for a Green Economy” of 1989, submitted to the British government. The report was written by David W. Pearce, Anil Markandya and Edward Barbier, who worked for several univer-

² A. Giddens, *The Third Way. The Renewal of Social Democracy*, John Wiley, Oxford 1998 and 2013; T. Kowalik, *Spory wokół nowej Trzeciej Drogi*, Scholar Editors, Warszawa 2001.

³ K. Horn, *Diesseits von Angebot und Nachfrage. Einige Anmerkungen zur Überdehnung des Gegensatzes zwischen Markt und Moral*, „Hamburgisches WeltWirtschaftsinstitut Policy“ 2011, Nr. 57; *Index of Modern Social Market Economies. Explorative Study*, Bertelsmann Stiftung, Gütersloh 2012.

sities.⁴ The concept, which actually became a postulate, was put on the agenda of the UN bodies (Green Economy Initiative, 2008) and discussed on the OECD forum, in particular the most recent Earth Summit in Rio de Janeiro in 2012, as a proposal for a new approach to shaping industrial production structure as well as a practical way of implementing the principles of the sustainable development and combating poverty. Those issues were also discussed within the framework of the low carbon economy which highlights the need to reduce greenhouse gases emission, especially carbon dioxide (in Poland even greater emphasis was put on reducing the emissions of toxic sulphur dioxide released by burning coal). All this has been focused on the main objective, viz. the improvement of the quality of life.⁵

President Obama aimed to launch reforms in the energy sector, education and health care. The program of energy development included implementation of new technologies poised to protect the natural environment, deal with the climatic changes and foster energy saving. The promised benefits include lowering the emissions of carbon dioxide so that they reach the level recorded in 1990 in 2020, increasing the use of renewable energy sources to reach 10% in 2012, and 25% in 2025, creating five million jobs over 10-year timeframe by investing 150 billion USD in the renewable energy sector, stepping up fuel consumption standards and emission controls for vehicles (Energy Efficiency and Renewable Energy Program). The implementation of the program is to be overseen by a team of scientists and experts, i.e. the green team. Apart from the financial support rendered by the state, "cap-and-trade" system proves to be an important part of that program, even though it raises some doubt as it may become another speculative bubble.⁶

In the USA, the postulate for the *green economy* gained importance as it became, simply speaking, a response to the financial, and then the economic crisis of 2008–2009. The recovery plan that was relatively quickly launched by the Secretary of Treasury Henry Paulson, and which consisted in purchasing the "toxic derivatives" from the US banks for the sum of 700 billion USD, and then allocating 23 billion USD to aid the motor industry, etc. The recovery plan was included in the President Obama's program "American Recovery Reinvestment Plan" poised to ensure long-term economic growth, and create new jobs in the first place. It is

⁴ D. Pearce, A. Markandya, E. B. Barbier, *Blueprint for a Green Economy*, Earthscan, London 1989.

⁵ L. R. Brown, *Eco-Economy. Building an Economy for the Earth*, W. W. Norton, New York 2001; M. Burchard-Dziubińska, *Zielona gospodarka jako nowy obszar zainteresowań ekonomii* [*Green economy as a new area of interest of economics*], IX Kongres Ekonomistów Polskich, PTE, Warszawa 2013.

⁶ P. Szyja, *Promowanie „zielonego rozwoju” a konkurencyjność przemysłu* [*Promotion of green development and competitiveness of industry*], Zeszyty Naukowe Uniwersytetu Ekonomicznego w Krakowie, nr 902, Kraków 2013.

worth mentioning that the new plan was called the New Green Deal, to the likeness of FDR “New Deal” which was created to fight the crisis of the 1930s.⁷

President Obama’s reforms within social welfare and health care came under fire of the liberal circles, mostly the Republicans. The program of changes in the energy sector was also attacked due to the increased prices of energy resultant from the stepped up ecological standards, and forced creation of green jobs at the expense of other, less capital intensive power equipment. Hence, the program has been implemented at a slower pace, and, at least for now, within a narrower scope.

The issues of the green economy are still much discussed. To give an example, UNEP, a UN department coordinating environmental protection, moved some slogans and programs for the green industrial revolution and the *green city* (focusing on ecological transportation and energy-saving housing). In the report of the World Council for Sustainable Development, the increasing competition within that area was called a *green race* in the new technologies of production, quality of production and services, and social responsibility. Those issues remained in the focus of other documents, e.g. the most recent version of the EU Lisbon Strategy, or “The Plan for Stabilization and Development” in Poland, which did not highlight the green economy. Nevertheless, that slogan is eagerly applied by NGOs, such as the Green Party.

There is another interesting and useful concept, i.e. *the issue of putting some green on the GDP*, i.e. including those values in the calculation of GDP which decide about the wealth level, even though they are not a subject of individual consumption (or market valuation) as e.g. the natural environment and its condition. In particular, this is about appraising net benefits derived directly from the environment, and investing in the natural capital to renew the natural resources.⁸ This may prove difficult, yet it is more credible than elaboration of Human Development Index (HDI) which, apart from the national product, also includes other indexes of social and economic development. Anyhow, the work on improving HDI is still being continued.⁹

Generally speaking, the *green economy* is characterized by three elements: low emissions, efficient use of resources and social inclusion. Consequently, the risk to the natural environment and its resources is reduced. In other words, it means a reduction of greenhouse gases and other pollutants, increased efficiency of the use of resources, in particular energy as well as biodiversity and ecosystem protection to increase revenues and employment, and social equality in the long

⁷ J. Trittin, *Obama’s Green New Deal. Die Stunde der Staaten*, “Internationale Politik” 2008, No. 12.

⁸ T. Żylicz, *Zazielenianie PKB [Greening of the GDP]*, „Aura” 2013, nr 7, 8 and *Cena przyrody*, Wyd. Ekonomia i Środowisko, Białystok 2014.

⁹ M. Łuszczuk, *Pomiar jakości życia w skali międzynarodowej [Measurement of quality of life]*, Fundacja Uniwersytetu Ekonomicznego, Kraków 2013.

run. *Social inclusion* has been defined as a process poised to improve the conditions of life of the community, and it is diagnosed with the threat of poverty. Currently it constitutes a serious problem, since according to the Eurostat poll, 25% of the EU residents are in that category, including 27% of the residents of Poland.

Many experts have claimed that the *green economy* means a practical implementation of the concept of sustainable development, which has not been sufficiently reflected in the political practice due to the operational shortcomings, and the pessimistic view on reconciling the shrinking natural capital with the sustainability of development. That is because to date there are no practical solutions to forming the relationships between the natural capital, sustained capital (production, anthropogenic) and human (social) capital and making the distinction between strong and weak sustainability principle, i.e. the rate of substituting natural capital by the other types of capital. In turn, the opponents of the *green economy*, particularly those from the political circles, watching the slowdown in the implementation of green economy programs, tend to formulate opinions that the new concept seems to be overtly idealistic, especially with Obama at the helm. Nevertheless, many authors consider that the *green economy* constitutes an important factor contributing to increasing the wellbeing, and improving the quality of life as well as a prerequisite for curbing the depletion of natural resources and limiting the ecological hazards. In short, the sustainable development is a theoretical macroeconomic concept that is more and more included in the programs of social and economic development at the government level and international forums. In the last decade its ideas and some practical concepts have been implemented at the enterprise level. In turn, the concept of the *green economy* is consistent with the principles of the sustainable development – which fact is frequently stressed in the launched programs – and as it seems, it has become a more and more apparent element of the economic policy, particularly within the area of energy and industry. Hence, it has assumed a more practical character and is more frequently applied. Nevertheless, quite frequently the labels of *green energy* and the *green city* are used merely for educational purposes as well as for informative and persuasive reasons, to raise the ecological and environmental awareness of the community.

3. New economy founded on knowledge

Similarly to the *green economy*, other terms such as the new economy, and the knowledge-based economy in particular, have become popular in the works describing social and economic changes and the progress of civilization. Although it may be ascertained that it is easy to discern some new rules for economic development and new economic structures within each stage of development of mankind, and that process is inseparably connected with the development of science

and its practical application, yet by the same token the on-going changes embrace significant factors with far-reaching consequences. Hence, even if an assumption is made that the observed changes are consistent with the typical trends in development, and the ever increasing classifications and multiplying terms reflect the dash to innovation, and are merely the consequence of “terminological progress”, yet the new terms and definitions are still worth analyzing and evaluating.

New economy is synonymous with the knowledge-based economy. Beyond any doubt, this is about the common application of hi-tech and provision of “intelligent”, fractal, virtual organizations as well as new principles of functioning of economic entities which are due to the advances in IT and flexible adaptation to the rapidly changing environment.

Classic factors of economic development such as land and natural resources, labour and capital (fixed assets and investment) are supplemented with knowledge, information and entrepreneurship, and expertise in the application of modern technologies.

The new economy is characterized by:

- Large engagement of IT technologies in the economic and social life as well as high input of high-tech and advanced sectors to total sales (in Poland, 12–15%),
- Availability and a wide range of information,
- Low, or even zero transaction costs,
- Negligible, or non-existent barriers to start-ups,
- Low, or non-existent barriers to market launches,
- Care for the environmental protection.

There are stringent prerequisites for inclusion in the group of knowledge-based economies, e.g. approximately 20 USD per capita of GDP, approximately 70% of services in GDP generation, R&D investment reaching 3% of GDP, innovation and openness of economy, *etc.*¹⁰ So we cannot yet include Poland to these high developed countries but there are more and more characteristic circumstances for new economy.

The economy based on knowledge and the enterprise of the future should be highlighting the care for the natural environment, yet most publications focused on that area do not give much attention to those issues (apparently that is due to presenting the viewpoint of management disciplines). However, even here there are some publications devoted to the environmental issues.¹¹

In conclusion, the new economy based on knowledge does not address the ecological issues as strongly as *the green economy*. This is apparent in more

¹⁰ J. Kleer, *Co to jest GOW? [What is it KBE]*, [in:] *Gospodarka oparta na wiedzy [Knowledge-based economy]*, ed. A. Kukliński, Wyd. KBN, Warszawa 2003.

¹¹ A. Chodyński, *Wiedza i kompetencje ekologiczne w strategiach rozwoju przedsiębiorstw [Knowledge and environmental competences in enterprise strategies]*, Difin, Warszawa 2007.

detail in the environment management systems such as ISO14000 and EMAS, and it is also manifested by the growing areas of the national and landscape parks, and "Nature 2000" areas. A note on the margin; formerly many countries, and the EU in particular, put the pace and factors of GDP growth at the forefront of their strategies and economic policies. Then, in the 1990s, the protection of natural environment became the supreme task. Currently, the ultimate objectives include striving for high quality of life, fighting unemployment and eradication of poverty.

4. Instruments for the implementation of the New Green Deal

The instruments of the state economic policy are quite diversified and relatively well known, yet the crisis of 2008 – 2009 changed the scope of their application, and the proportions of the state intervention in banks and the corporate world. Hence, putting aside certain nuances and differences between the countries, it might be inferred that the governments decided on a significant increase in public aid by way of subsidies and grants – in contrast to the cultivated principles of the market economy and the indirect instruments of influencing corporate entities – and then on the launch of green economy programs, with the application of both types of economic policy instruments. Those instruments may be programmed in the following way:

- legal and administrative instruments such as orders, prohibitions, mandatory or optional norms, certifications and other regulations;
- grants from the state budget and earmarked funds;
- government guarantees necessary in application for investment and export credit:
 - insurance for foreign transactions;
 - tax policy, customs policy, changes in interest rates;
 - raising state reserves;
 - informative and persuasive instruments.

It should be noted that the above instruments are more and more often applied to launching and implementing new technologies which ensure clean production and clean energy, in line with the Technology Assessment. Under those circumstances there is an urgent need to provide green jobs, i.e. new jobs in the clean energy economy as well as such jobs that help to eliminate emissions, while restoring and maintaining a high quality of the natural environment, the protection of biodiversity and ecosystems.

The concept of the *green economy* emerged in the USA on the foundation of the New Deal of the 1930s experience, and on the framework of economy transformations poised to protect the natural environment and create new jobs. Similarly to the FDR portfolio of reforms, the slogans of the new green deal of the 21st

century are poised to globally repair the economy after the crisis which started with the slump on the financial markets, to stimulate the activity of the state to encourage economic recovery, and to promote large public expenditure on the implementation of investment projects, including those in the public sector. Such programs of the green new deal have been launched in China, Japan, South Korea and Germany.

Those issues were raised during the G-20 summit in London in 2009. Regrettably, the final statement did not include any definite plans or the quota to be allocated to the development of the green economy (despite the fact that pro-ecological investment projects play an important role within the anti-crisis portfolios of individual states). Also, in the years to follow, there were no much sought far-reaching solutions.¹²

The implementation of the green economy and the green new deal calls for structural changes, since it requires transformation of the traditional sectors of manufacturing and municipal services, i.e. the most energy-intensive areas responsible for the emissions of greenhouse gases. Such program has been already launched by the **United States of North America**, where the Green New Deal was announced to be the key element of the anti-crisis portfolio. This may sound somehow surprising, for even though the US possess modern, continually upgraded technologies, they have been dodging international commitments within the environmental protection due to the high cost of their implementation (e.g. refusal to ratify the Kyoto protocol on the reduction of greenhouse gases emission). Acting in his capacity, President Obama launched many projects in his country, e.g. commencing the system of carbon emissions trading or lowering fuel consumption standards for vehicles. Those projects reverted to the earlier legislative acts which were blocked by the industrial lobbyists and the Republicans due to the high cost of their provision as well as the rising public expenditure and the state control of the private sector.

The US administration activity has been targeted on increasing the power efficiency, fuel saving and carbon emissions reductions by promoting investment in the following areas:

- renewable energy sources,
- implementation of clean energy technologies,
- manufacture of fuel frugal vehicles,
- the use of ecological fuels,
- large-scale thermo-insulation of buildings.

To this end legislation was passed to curb fuel consumption of cars, regulate energy efficiency of buildings and industrial installations, tax breaks for the buy-

¹² P. Szyja, *Znaczenie programów Zielonego Nowego Ładu dla rozwoju społeczno-gospodarczego* [Importance of Green New Deal Programs for socio-economic development], [in:] *Zielony ład gospodarczy oraz wybrane problemy rynku energii i gospodarki wodnej*, Biblioteka „Ekonomia i Środowisko”, nr 35, Kraków 2013.

ers of ecological vehicles, discounts for the buyers of solar installations and energy-saving systems, financial support for the manufactures of electric motors and batteries, loans for the motor industry, subsidies for 100 cities to lower fuel consumption by public transport (Clean Cities Program), grants for households to increase thermal insulation of homes, *etc.*

By 2020, the implementation of the above programs which is instituted by 35 government agencies should have lowered fuel consumption by 30%, greenhouse gases emissions by 28%, water demand by the economy by 26%. It also should have increased the share of renewable sources of energy to 16% of general energy consumption, and recycled waste to 50% by 2015. In addition, the share of government contracts meeting the requirements of the environmental protection and sustainable development should have grown to 95%. Those programs should generate 2 million new jobs.

In the **European Union**, the objectives of the economic development and the methods of its stimulation were formulated in The Lisbon Strategy for Growth and Jobs of 2000, yet that document did not even hint at the sustainable development or climatic changes. In 2001, The EU Sustainable Development Strategy was adopted, and then a program for the development of environment friendly technologies was launched in 2004. Those programs made a real difference in real terms, and that is why an amended version of The Lisbon Strategy was adopted in 2005. In 2007, work began on the elaboration of an integrated climatic and energy policy poised to ensure:

- greater safety of supply of energy and fuels,
- competitiveness of the economy and delivery of energy at competitive prices,
- promotion of environmental balance and counteracting climatic changes,
- transformation of the European economy towards low-emission model.

At that time work was begun within the framework of the European Strategic Energy Technology to ensure a significant increase of energy generation by the wind farms and solar systems. Other programs were also launched, particularly those dealing with the climatic changes.

The financial meltdown in the USA triggered steps taken to stabilize the banking sector in Europe, e.g. the bail-out of Hypo Real Estate and Fortis Bank. In 2008, *A European Plan of Economic Recovery* was launched to stimulate the economy with budgetary subsidies amounting to 200 billion EUR, and to increase the competitive edge of Europe in the long term. The plan was to safeguard energy security and limitation of CO₂ emissions with the application of legal and financial instruments, and with the structural reforms. Total value of financial instruments (mainly taxation) amounted to 400 billion EUR, i.e. 3% of the EU GDP.

The EU program of stimulation highlighted the complementary character of the objectives set to boost the economy and the environmental protection due to clean technologies, green products and green skills. It should be noted that

the program was more comprehensive than the anti-crisis plan adopted by President Obama.

Some European states launched their own anti-crisis programs which included the green issues. In most countries, green issues are considered to incorporate steps taken to improve energy efficiency, renewable energy sources, development of public transport and scrapping written-off vehicles. Some countries give due regard to environmentally friendly technologies and innovations as well as ecological taxes. The share of green issues in anti-crisis programs (i.e. allocated financial resources) reaches from 1.5% in Italy to 13% in Germany, and 21% in France.

All the member states adopted the National Energy Efficiency Action Plans stipulating energy efficiency standards for public facilities and private homes, and possible tax breaks for those properties. Some countries provide interest-free or low-interest loans earmarked for the purchase or construction of such properties. Tax breaks also apply to the purchase of green cars and buses. Great Britain was the first country to pass a budget primarily poised to limit the emissions. Cap-and-trade system has become an important instrument in fighting emissions; the system, which was launched in 2003, allows trading ETS permits. The insufficient number of permits (cap) leads to trading the limits. Initially, merely 5% of permits could be traded (a complementary allotment made up 95%). Currently 50% of the allotment are auctioned (which should raise a relatively low price of that instrument), and it is envisaged that the whole allotments should be auctioned in 2027.

The environmental objectives of the EU are aptly described with the already proverbial 3 x 20, which stands for limiting the greenhouse emissions by 20%, decreasing energy consumption by way of increasing the efficiency of its use by 20%, and raising the share of renewable energy in total energy consumption to 20%; all those objectives should be met within 1990–2020. The EU anticipates further increases of those indexes, in particular boosting the reduction of CO₂ emissions to 30%, which has raised much controversy and protests within those countries that base their energy generation on coal. Poland is most concerned with those prospects, however the support for that concept is expected to grow gradually, providing there is bigger EU financial aid.

“Europe 2020. A Strategy for smart, sustainable and inclusive growth”, a document adopted in 2010, laid the foundations for the development of the green economy whose priorities include: intelligent economic development, sustainable growth and development fostering social inclusion. “Energy 2020” was released as a continuation of “Europe 2020” whose expenditure allocated to finance the objectives of energy and climate policy are to amount to 20% of the EU budgetary expenditure. Energy saving has become the most cost efficient way of reducing emissions, improving energy security, and increasing competitive advantage. It has been envisaged that low emission economy to be implemented by 2050 should have resulted in dropping CO₂ emissions by 80% in comparison to 1990 level.

In 2008, **Poland** also adopted an anti-crisis plan called “The plan for stability and growth” with the allocated budget of 91.3 billion PLN (almost 22 billion EUR). The plan stipulated taking steps to stimulate the economic growth by boosting consumer and investing demand. However, the government plan did not envisage earmarked projects and instruments that would stimulate the development of *the green economy*. To give an example, there were no tax incentives for the motor industry for the manufacture of environmentally friendly vehicles (such incentives were introduced in Germany). The issue of the green economy was not put on the agenda of “Poland 2030. Challenges for development” report. “Energy and climatic security” was the only “green” issue mentioned among the ten listed challenges. Still, ecological and sustainable development issues were raised within the confines of the national program of reforms “Europe 2020” launched by the Ministry of Economy in 2011, as a part of “Energy and Environmental Security” strategy. It anticipates the modernization of the energy network and the development of the low-emission economy attained with the application of the advanced technologies. The Green Party criticized the program for its too liberal approach to the model of economic growth as well as for insufficient exposure of the position of Poland which is, in their view, lagging behind in terms of modernization of energy sector and transportation.¹³

Poland has excelled within the application of economic instruments fostering environmental policy. It launched a complex system of environmental taxes (for the emissions and other forms of exploiting the natural environment) which are credited to the National Fund for Environmental Protection and Water Management as well as the regional funds, i.e. voivodeship funds (till 2010, they were the district – poviát and commune – gmina funds). Environmental (ecological in Polish) taxes and product taxes prevail in Western Europe (they were introduced in Poland as late as 2001). The taxes and ecological funds allowed financing 40% of investment outlays allocated to the environmental protection in the early 1990s, which made it possible to raise their share in GDP from 0.2–0.3% to approximately 1.5%, almost matching the share practiced in the Western Europe¹⁴. Currently the share of environmental funds amounts to 12–14%, while the contribution of the EU to financing environment protection investment jumped from 3–5% to over 20%.

To a certain degree, the government program supporting strategic investment, i.e. the projects poised to accelerate the economic growth, was based on

¹³ D. Szwed (ed.), *Zielony Nowy Ład w Polsce [Green New Deal in Poland]*, Green European Foundation, Heinrich Böll Stiftung, Warszawa 2011.

¹⁴ K. Górka, *The problem of the functioning of environmental funds in Poland*, [in:] *Finance and Environment*, ed. L. D. Dziawgo, Dom Organizatora, Toruń 2003, p. 563–586; K. Górka, *The earmarked funds as a basic economic instrument of environmental policy in Poland*, “Aestium” (Firenze University Press) 2006, Issue 48, p. 1–17.

the American or German models. Within 2012–2013, a state joint stock company “Polish Development Investment” was set up to implement the program “Polish investment” with the Bank Gospodarstwa Krajowego. The stock capital of the company was 10 billion PLN, with the credit line of 40 billion PLN granted by the BGK. Investment projects are to be financed from the sales of state-owned plcs on the Stock Exchange (including the shares of PKO BP for five billion PLN). The project is to be implemented by the consortia, with the contribution of the PIR partnership. Hence, the doctrine has been changed; the privatization of the state owned enterprises will not credit the state budget – which has been the tradition – but rather directly finance development investment. Despite some critical comment warning that a state-owned partnership will be pressured by the politicians and that investment from public funds is less efficient, the launch of the venture was successful. In 2014, the PIR partnership invested over four billion PLN (1 billion EUR) in energy projects, implemented jointly by the state-owned and the private partnerships. The partnership, among other ventures, signed a contract with Lotus Petrobaltic to extract oil in the Baltic and, jointly with the BGK, another contract to set up the Regional Infrastructure Fund.

In keeping with the issues of the green economy, Poland has not yet defined *the green jobs*, hence there is no statistical data on that subject. The Foundation for the Environment and Natural Resources Economists distinguished 28 positions engaged in the protection of the natural environment (making reference to the *Classification of jobs and specializations* by the Main Census Office), and then surveyed employment in green jobs. Currently there are 374 thousand people, i.e. 2.6% of total workforce. There are 48 thousand people working for water and sewage management and waste management, while the remaining approx. 282 thousand work in production and services, and 44 thousand are employed in the state administration and the territorial government. According to the Greenpeace assessment, Poland can create 350 thousand jobs in the renewable energy sector by 2020. In conjunction with the environment management systems ISO 14001 and EMAS currently implemented by the enterprises, there is an opportunity to double employment in the environmental protection sector. The development of the new branches of industry considered green or green is even a wider issue. They have become a dynamically growing part of the hi-tech, or advanced branches and constitute 12–15% of the processing industry.

5. Conclusions

The concept of the sustainable social and economic growth is already widely recognized by the business circles and it has found its place in the economic strategy and policy. The only question that has to be answered is about the strength of

that sustainability. The green economy has picked up after 2000, and it should become an important instrument for overcoming the economic crisis and combating unemployment, particularly with the application of a new restructuring of industry and energy sector in the USA and Western Europe. In the economic practice, those processes take much longer time than it was anticipated. In Poland, the changes after volatile transformations of the 1990s take even more time, even though the GDP growth rate seems positive in comparison to other countries. This may be the consequence of delays in building knowledge based economy rather than a slow progress in the developing green economy. At any rate, *the sustainable growth* and *the green economy* may need certain conditions, such as the democratic system and citizen community, market economy with the active contribution of the state – particularly in terms of provision of the institutional order – and environmental awareness of the society, which, contrary to appearances, is not easy to instigate in the contemporary world.

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ABSTRACT

The author presents an idea of the Sustainable Development as a concept connected with social market economy and then the history and parallel programs of green economy. He also explains ideas of new economy and the knowledge – based economy as synonyms. At the end there are described instruments for the implementation of the green economy in USA, European Union and Poland.

Key words: sustainable development, third way, New Green Deal, economic instruments, environmental policy.

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